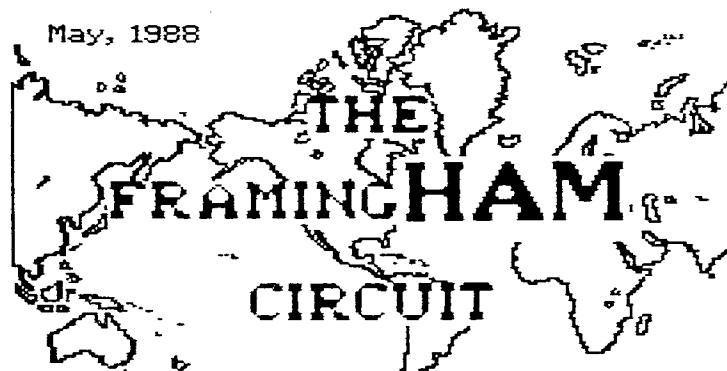


May, 1988



The Monthly Publication of W1FY, The Framingham Amateur Radio Association  
F.A.R.A., P.O. Box 3005, Framingham, Ma. 01701 Vol. 55, No. 5

## Meetings

The club meets on the 1st Thursday of the month at 7:30pm at the Danforth Museum rear entrance on Lexington St.

NEXT MEETING  
MAY 5, 1988

## Pizza Night!

It has been traditional for many years that the first meeting following the flea market in the spring and in the fall is Pizza Night. Following the meeting join us for pizza. This is how the club thanks those of you that helped to make the flea market successful once again.

## An Act of Heroism!

While on a recent trip to Dallas, Texas I had the opportunity to monitor an act of heroism by one of our fellow amateur radio operators!

On Friday April 15, 1988, Bernie Parker, N5EYR, had gone into the bank to cash his paycheck while on his lunch hour. As he returned to his car he saw a man drag a woman forcibly from her car and into his. With her kicking and screaming and the door of the car still ajar he saw him drive away. Bernie jumped into his car and pursued the driver. He picked up his microphone on the 2 meter radio in his car and asked for a break on the Dallas Amateur Radio Association Repeater, 146.88. He asked for help with an autopatch to the Dallas Police while he explained briefly what was going on.

Jim Haney, WB5JBP, came back to him and put through the call. Bernie explained the situation to the dispatcher who seemed at first somewhat reluctant to take this call seriously. Bernie followed the car through red lights and at great risk to himself stayed with it so the police could be directed to apprehend this alleged criminal in the act of kidnap. The police in 6 cruisers apprehended this person thanks to the heroism portrayed by Bernie. I feel honored to have been able to monitor this act of heroism and

also be able to write the story in our newsletter. As I congratulated him on the air Bernie insisted anyone of us Hams would have done the same thing in his situation.

This story only emphasizes how valuable a service we provide to the community. Bernie, congratulations for a job well done!

I hope we get a follow up as to what actually the circumstances were with the crime and how it all was resolved.

by Theodore Gruber, WB1ECE, editor.

## From the Podium!

The Spring FARA flea market is now history and before too long the warm temperatures and sunny skies of summer will be here.

Once again the flea market was a huge success and those people who helped are to be commended. Whether you helped setting up the tables, putting up signs, securing doors, talk-ins, parking lot and collecting money, to all of you please accept my heartfelt thanks. A very special thanks to LEW NYMAN, K1AZE, flea market chairman and to DICK LANDAU, W1IBN, chairman to be, for an excellent job coordinating the entire event. Also, a special thanks to DICK MARSHALL, W1KUG, for doing such a great job coordinating and administering all the exams. Along with Dick many thanks to the VE's who gave the exams. To all who gave their time and effort many thanks.

If there is anyone wishing to hold office for the coming year please contact JULIE HOFFER, W1DL, 872-5084.

For FIELD DAY this year, we are departing from our normal routine and scaling down our operation to consist of several stations set up in a very simple manner. I am looking for operators and people to help set up. Please see me at the MAY meeting so that we can collectively coordinate this event.

Finally, I would like to thank MARK STERN, N1BLH, for doing a great job as NET CONTROL for the BOSTON MARATHON and BOB CHIN, WB1FHT, RED CROSS coordinator, and all the people that did such a good job at each station.

I'm looking forward to seeing you all at the meeting.

73's Burt, N1DDO, President

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**FROM THE EDITOR'S DESK**

I am very grateful for having had the opportunity to have been the editor of the FramingHAM Circuit for the few months that I have. In the next few weeks Judy and I are perhaps going to be leaving the Framingham area. We will greatly miss all of you. Many of you we have known better than 10 years. If it had not been for Amateur Radio we would never have known many of you. You have added a richness to our lives that can never be taken away.

It is time for you who may be interested in taking on the editorial duties of the FramingHAM Circuit to contact myself or Burt and let us know so that when the time comes there can be a smooth transition. A good newsletter is the clubs lifeline. I don't want to see an issue missed in the transition! I will be happy to help the new editor all that I can if he or she needs it.

Good Bye!

73's, Ted Gruber, WB1ECE, Editor

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**Minutes of April Meeting  
of the Framingham Amateur Radio Assn.  
Submitted by Marc Stern, N1BLH, Secretary**

The April meeting of the Framingham Amateur Radio Assn. opened at 7:40 p.m. April 7 with Burt Shaffer, N1DDO, presiding.

After member and guest introductions, Burt thanked Ed and Mary Weiss, W1NXC and K1HGL, for their dedication to the Saturday morning Novice and Tech classes. Ed and Mary have devoted many Saturday mornings over the last few years getting students prepared for their exams. Burt also thanked Wayne Ledder, W1EWL, for his

assistance at the classes.

Moving along, Burt then thanked Dick, W1IBN, and Cheryl Landau for their great work in taking care of the 1988 banquet. As usual, it was a resounding success. (Cheryl notes that she is thinking of entering the Novice classes this fall; she's already learning CW in preparation for it.)

The main business of the evening centered on the flea market. Co-chairs Lew Nyman, K1AZE, and Dick W1IBN, talked about the semi-annual event.

It was noted that:

- . A sell-out was expected.
- . Volunteers were still needed to help out.
- . Flea market talkabout frequency 146.580 MHz was to be used.

Next, Field Day was discussed. It was suggested that we would be able to have the state Civil Defense agency grounds on Route 9 as the site for the event. Section Manager Barry Porter, KB1PA, speaker for the April meeting, was in the process of finalizing the details, but expected that we would have the go-ahead. Burt asked for those operators interested in Field Day to contact him after the meeting. A meeting was in the planning stages of those operators who wanted to operate Field Day. More was to be announced later.

Elections were the next topic and Burt asked Julie Hoffer, W1DL, for a report on the progress of the nominating committee. Julie noted that they have come up with several candidates and they would be announced at the May meeting. Julie and the other Nominating Committee members, Jonathon Weiner, K1VVC, and John MacLeod, W1IGL, were in the process of finding other candidates to fill out the slate.

The Marathon Net was also discussed and operators were notified that there would be a meeting on Sunday April 10 at 10:30 a.m. for assignments.

Under new business, Burt suggested the club support the Handi-Hams organization and this sparked a long and spirited discussion.

The central points of the discussion included the following:

- . Handi-Hams is a group worthy of support.
- . It makes sense for the club to become a supporter of the cause.
- . It is an added expense to the club treasury.
- . Some cuts have to be made to some programs or grants in order to fund the Handi-Hams.
- . The scholarship was viewed as a possible source of funding.
- . Some funding has already been cut and some priorities have already been re-arranged to accomodate the banquet. Further re-arranging was expected to be needed to continue funding the scholarship and other programs at the same level.
- . It was noted that we couldn't alter the basic funding of the scholarship this year because we have already committed to a figure.
- . The structure and future of the scholarship will be discussed in the future.

Among the recommendations made to find a solution were:

- . Using the proceeds from the club table at the Flea Markets to help fund Handi-Hams.
- . Having contribution boxes set

up at all the entrances to the Flea Market.

- . The scholarship will be discussed in depth by the Executive Board and committee to develop next year's policy.
- . The club also scheduled raffles to help fund the Handi-Hams contribution. The first one netted over \$30.

After the long discussion, the meeting was adjourned at 8:44 p.m. when the club heard from KB1PA on the "Future of Amateur Radio."

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#### **AMATEUR RADIO and HANDI-HAMS**

by  
**Judy Gruber, KA1NPT**

Amateur radio can open doors to the world to people who may find it difficult to get around outside their homes. It gives handicapped people the opportunity to make friends and contacts with people in the next town or somewhere on the other side of the world. But, in order to do this the handicapped person needs special help. He or she may not be able to attend radio classes, or read theory books, or set up radio equipment.

Courage Handi-Hams is a service organization made up of handicapped individuals who are interested in learning about amateur radio and non-handicapped people who want to help them. All information is collected and sent out from Courage Handi-Ham System, Courage Center, 3915 Golden Valley Road, Minneapolis, Minnesota 55422.

This organization makes tapes available to students to study morse code. In addition they distribute theory tapes for the blind and equipment for practice for interested people who are ready to get on the air. They match students with non-handicapped volunteers in their area. They publish a quarterly newsletter and

run camps and other activities to encourage meetings among handicapped hams.

In addition to Handi-Hams Kathy, KAIYR, suggested that interested people should also contact the ARRL because they provide lists of local radio clubs and names of the members who are willing to help new hams get started. The ARRL also publishes an excellent booklet entitled "The ARRL Program for the Disabled". It is available on request by writing to ARRL, 225 Main St., Newington, CT. 06111.

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The membership and officers of FARA all wish Roger Bent, W1JPK, a speedy recovery after several operations. He is now at the Spaulding Rehabilitation Hospital. Get Well Soon. OK.

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#### **Flea Market Exam Session Report**

Dick Marshall, W1KUG, the exam session coordinator would like to thank everyone that helped out. He reports that everyone who helped him did a fine job. I also want to say that Dick, who did all or most of the preliminary paper work made all of our jobs easier too. He has organized it very well. He has it down to a science and it gets better and goes smoother each time he runs it.

Also our congratulations to everyone upgrading their present licences and those of you that have become new licensees too.

To the VE's who helped:

Pete Simpson, K1AXY  
Ron Egalka, K1YHM  
Marc Stern, N1BLH  
Howard Davis, W1VJFJ  
Ted Gruber, WB1ECE  
Ed Weiss, W1NXC  
Lew Nyman, K1AZE  
Dick Landau, W1IBN

Novice Exams given by:

Toby Shaffer, N1DDS  
Burt Shaffer, N1DDO

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Club Members Upgrading:

Roy Crossman,	KB1YR,	Extra
Irv Davis,	K1VKM,	Advanced
Carl Getter,	W1MIJ,	Extra
Elaine Getter,	K1RLQ,	Tech
Tom Malloy,	K1MIU,	General
Dick Senghas,	KC1GU,	20 wpm
Brenda Forde,	KC1HF,	Extra Written
Carl Chellquist	K1RNF,	Tech
Meredith Brassard,	K1RNE,	Tech
Claire Ledder,	K1RLS,	Tech
Scott Ledder,	K1RLT,	Tech
Adele Sobel,	K1RLP,	Tech

66 people at exams. 123 exams were given!

Thanks Gang!

73's, Dick Marshall, W1KUG

Today's Topics:

MUF Prediction Program Comparisons

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The following article was extracted from the Space Environment Services Center bulletin board:

- - Results of Microprocessor MUF Predictor Evaluation - -

In the spring of 1987, the Sysop became aware of the program MINIMUF 3.5 and decided that this would be a nice feature to add to the SEL Public Bulletin Board System. What was particularly appealing about this idea was that our computer 'knows' what the current sunspot number is (and also knows the current date) so the user would only have to input the endpoints of the path for a prediction.

Colleagues at the Naval Ocean Systems Center in San Diego, the developers of MINIMUF, were contacted and soon we were translating a copy of MINIMUF from BASIC to Turbo Pascal 3.0 for implementation on the PBBS. The copy we received from NOSC was the same as the program listing published in the December 1982 issue of QST magazine.

Some minor changes were made to the PBBS menu format and MINIMUF 3.5 was up and running on the Board by early June of 1987. Within a month the Sysop was 'taking heat' from users for using MINIMUF. It should be stated here that the Sysop's opinion is that whatever the failings of MINIMUF (if there are any), the program will always be regarded as a 'first'. It was small enough and fast enough to run on a micro, and it was good enough (in many situations) to provide effective guidance to the HF user.

Robert Brown, NM7M wrote to us and informed us of the work of one Raymond Fricker of BBC External Services. Dr Brown urged us to compare MINIMUF and some of Fricker's work with IONCAP (a program developed in Boulder by a different agency of the Government, the Institute for Telecommunication Sciences). Dr Brown assured us that the programs based on Fricker's work gave results much closer to IONCAP output. With Dr Brown's help, we were able to obtain the Fricker derivative code. By September 1987 we were set up to make multiple runs of a variety of MUF predictors so that we could assess which code we should be running on the PBBS.

IONCAP seemed to be the sensible thing to compare the other programs with. In some circles, at least, it is accepted as the most comprehensive (and best) HF prediction program available anywhere in the World at this time. We verified that IONCAP output is sent to the ARRL for publication in QST each month (more on that in a moment) so we felt that if people would compare our PBBS program output to anything, it would be compared to IONCAP.

Recently, to verify that IONCAP runs are published in QST, we ran IONCAP for the thirty paths which are shown each month. To our surprise we found the plots in the December 1987 and January 1988 issues to be uniformly higher (by 4 MHz) than the appropriate IONCAP runs. This discrepancy appears to have been corrected in the February issue. You can satisfy yourself of this by comparing the plots in the January and February 1988 issues. Although the assumed sunspot number rises from January to February, the MUF's all fall by about 4 MHz! In addition, QST appears to be tracing a crude printer plot to get their monthly plots, instead of carefully plotting the hourly numerical values that IONCAP outputs. This can result in additional error of about 1 MHz due to line spacing on the printer.

For our customers who are interested, we found out it is possible to buy your very own copy of IONCAP. It is available from the:

National Technical Information Service  
5285 Port Royal Road  
Springfield, VA 22161  
Phones: Order Desk only (703) 487-4650  
Software info (703) 487-4807

IONCAP is available in two forms:

1. IBM PC-XT compatible (Order No. PB87130993)  
4 floppies and documentation for \$125.00
2. IBM PC-AT compatible (Order No. PB87111126)  
1 floppy and documentation for \$75.00

NTIS accepts VISA, American Express and MasterCard.

The computer resources necessary to run IONCAP are 512K of RAM with a Winchester disk or a high-density floppy disk. The program resides on the disk as a single run module (about 430K in size) and does not require overlays. A math coprocessor is desirable, though not necessary. At SEL, on an 8 MHz XT compatible without a coprocessor we find it takes about 11 minutes to make a MUF prediction with IONCAP!

We decided to perform the evaluation against IONCAP over four different paths, for four seasons of the year and two levels of sunspot activity. The four paths were Boulder, Colorado to: 1. Midway Island (28N 177W)

- a medium length uncomplicated mid-latitude path.
2. Easter Island (27S 109W)  
a medium length north-south path which crosses the geomagnetic dip equator.
  3. London, England (52N 00W)  
a nasty path which is representative of the heavily used HF paths from the central US to northern Europe.
  4. Mexico City (19N 99W)  
a fairly short and simple north-south path without magnetic complications.

We used January, April, July and October for seasonal variety and sunspot numbers of 60 and 120 (numbers have frequently be around 60 lately and may reach 120 in a couple of years). Thus, we set up 32 'path situations' which we planned to evaluate for 24 hours of the UT day, or 768 separate calculations for each program.

We obtained our copy of IONCAP for use in these evaluations. We got a copy of MINIPROP from Shel Shallon (more about that later). We got copies of programs called MICROMUF 2+, MAXIMUMUF 3.0 and KWIKMUF 2 (all using Fricker's code in one way or another). NOSC in San Diego supplied code for both MINIMUMUF 3.5 and MINIMUMUF 85. After we had finished our evaluation, we obtained a copy of MINIFTZ4 from West Germany. That was recently run for the same 'path situations' and the results are included here.

Below you will find a table of the results. In order, the table shows for each of the 768 hourly comparisons: 1) the average difference (in MHz) between that program and IONCAP.

2) the average rms difference (in MHz) between that program and IONCAP.

Column 3) shows the average 'goodness of fit' or squared linear correlation coefficient between the program and IONCAP for each of the 32 24-hour predictions.

	1) Mean Diff.	2) rms Diff.	3) Fit
MINIMUMUF 3.5	4.2	5.6	0.82
MINIMUMUF 85	3.2	4.6	0.79
MICROMUF 2+	-0.2	3.1	0.81
--> MINIPROP	0.2	2.6	0.83

MAXIMUF 3.0	-1.4	2.7	0.84
KWIKMUF2	-1.6	2.9	0.87
MINIFTZ4	-2.6	3.7	0.79
--> KWIKMUF2.1	-0-	2.5	0.87

Notice that the family of programs MICROMUF 2+, MINIPROP, MAXIMUF 3.0 and KWIKMUF2 have similar rms differences with IONCAP (over the chosen paths). Although MINIPROP had the lowest rms difference (2.6 MHz), the differences between the outputs of these four programs are not statistically significant. For all practical purposes, all four programs are equally good. It happens that all four of these programs are based on Fricker's algorithms!

For KWIKMUF2.1, we simply added 1.6 MHz to each hour's calculated value. The results obtained here might be different for a different selection of months, sunspot number or geographic path. In recent weeks we have run both IONCAP and KWIKMUF2.1 for all 30 paths typically plotted in QST for the month of April 1988. Agreement was good between the two programs for 25 of the 30 paths. In the other 5 cases, the curves generally had similar shapes but differed from each other by more than 5 MHz over several hours.

In the coming months, we hope to expand the HF prediction portion of the SEL BBS. We are considering creating a separate sub-menu for MUF prediction which would make a variety of routines available to our users. Since MINIPROP faired so well in the evaluation, we hope to make a working MINIPROP MUF module available on the PBBS soon. We have only recently acquired Turbo Pascal 4.0 which will make it possible to expand the entire Board beyond its current 64K limits. In the interim, we are attempting to convert KWIKMUF2.1 to Turbo Pascal so we can replace MINIMUF 3.5 (the existing module). One day we hope to be able to make several prediction modules available on the Board. We also plan, eventually, to make source code available for downloading (where we have the author's permission).

For those who wish to run these programs on their own machines, MINIPROP 2.0 is currently available as userware. Information about MINIPROP can be obtained by writing to:

Sheldon Shallon, W6EL  
11058 Queensland Street  
Los Angeles, CA 90034-3029



MINIPROP contains a large number of features which DXers might find useful, beyond just the MUF predictions. MINIPROP can also be found on some computer bulletin board systems devoted to amateur radio software. We have been impressed by MINIPROP, not only because of the MUF results, but because it predicts the E-layer cutoff and even estimates signal strengths for the ham bands.

There you have it, not quite in a nutshell. The Sysop appreciates the patience all of you have shown while we have completed this study. As they say, "Rome wasn't built in a day". We will try, in the months ahead, to improve our services as we go along. Your comments are always read, considered thoughtfully and usually appreciated.

Note from KALAXY:

The program MINIPROP 2.0 mentioned above is available for download from the CULDESAC BBS in Holliston, 429-1784. It gives not only propagation information but also beam headings, best predicted band to specified area and lots more neat stuff.